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THE UNIVERSITY OF THE STATE OF NEW YORK
BULLETIN TO THE SCHOOLS

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Convocation Addresses Contribute to Educational Thought

Large audiences that by their close attention and favorable comments gave evidence of their interest in the program made the sixty-fourth Convocation of The University of the State of New York on Thursday and Friday, October 18th and 19th, a most notable educational gathering.

It was evident that school people throughout the State approved the action of the Convocation committee in selecting "Educational Research" as the central theme for discussion this year and realized the privilege offered in hearing outstanding leaders in education, business and industry describe progress made in research methods and in various fields through research.

The Convocation started with the registration of delegates on Thursday afternoon. Then followed a reception tendered by the Regents and Commissioner of Education in the rotunda of the Education Building. At the reception a feature appreciated by all was the singing of the chorus of the State Normal School at Potsdam.

That afternoon also was the occasion for the unveiling of a monument to Joseph Henry in Academy Park, the principal address being given by Dr John H. Finley, formerly President of The University of the State of New York and State Commissioner of Education.

The first session of the Convocation was opened by Vice Chancellor Adelbert Moot. The invocation was pronounced by Rev. Henry A. Vruink, pastor of the Madison Avenue Reformed Church, Albany. The presiding officer was Dr Richard E. Sykes, president of St Lawrence University, and the speakers were Dr Burdette R. Buckingham, professor of the Graduate School of Education at Harvard University, and Dr Frederick P. Keppel, president of the Carnegie Corporation. Then the honorary degree of doctor of laws was conferred upon Dr Owen D. Young, chairman of the board of directors of the General Electric Company, the presentation being made by Regent Walter Guest Kellogg. The degree was conferred by Commissioner of Education Frank P. Graves. The orchestra of the State Normal School at Potsdam played selections and the chorus of the same school sang at this meeting.

The second session was opened by Mrs Herbert Lee Pratt, Regent of the University, who introduced as the presiding officer, Dr Charles W. Flint, president of Syracuse University. The speakers were Dr Owen D. Young and Dr Werrett W. Charters, director of the Bureau of Educational Research at Ohio State University. Edward A. Filene, president of William Filene's Sons, Boston, who was scheduled to speak at the session, was delayed in arriving in Albany when the airplane in which he was traveling from Chicago was forced back by a storm. He arrived in time to address the afternoon session. The Schenectady High School orchestra played selections at this meeting. A motion picture showing practical results of research was shown.

The closing session of the Convocation was opened by Chancellor Chester S. Lord. Dr Frederick B. Robinson, president of the College of the City of New York, was the presiding officer. The speakers were Dr Edward Lee Thorndike of the Institute of Educational Research of Teachers College, Columbia University, and Mr Filene. Selections were played by the Troy High School orchestra. The Convocation was adjourned by Chancellor Lord and the benediction was pronounced by Rev. Charles W. Findlay, rector of St Andrew's Episcopal Church, Albany.

Among those who registered were 142 superintendents of schools, 195 principals, 53 college representatives, six normal school representatives, nine representatives of boards of education and 138 elementary and high school teachers.

Because of the interest in the addresses abstracts are printed on the following pages.

Abstracts of Convocation Addresses

THE PHILOSOPHY AND ORGANIZATION OF RESEARCH

BURDETTE R. BUCKINGHAM

Professor, Graduate School of Education, Harvard University

The progress of the world rests squarely upon research; and as the boundaries of knowledge are extended, through its instrumentality, along one sector after another of the frontiers of human thought, and as a larger and ever larger number of workers join its ranks, the social significance of research is destined to exceed that of any other service yet entertained by the mind of man.

Research is a method applicable to all areas of thought. I refer to research as a method. It is not a field of knowledge, although it is entirely possible to study it for what it is, namely, a way of establishing new truth in any field of knowledge.

The purpose of this universal method is the contribution of new truth. I have just used three important words in the vocabulary of research, namely, "contribution," "new" and "truth." The research worker is nothing if he is not willing to seek the truth wherever it may be found and in whatever form he may encounter it. Although truth is at once the object of research and the touchstone of competence on the part of the research worker, it is not just any truth which may properly serve the purposes of research. The ideal is *new* truth.

Research has as its object the making of a contribution. The question of whether a contribution is made breaks up into several conditioning items. The problem must have some worth, the execution must be sufficiently competent to secure results of value, and there must be a report which brings the findings to the knowledge of the world in understandable form.

With this objective in mind, it is proper to consider the nature of research — in other words, its philosophy. Broadly speaking, research is a form of thinking. It can not arise until a problem is recognized. It can not proceed until data have been assembled. It requires the organization of these data so as to disclose their meaning and relationships. It ordinarily involves the setting up, and frequently the tearing down of hypotheses. It organizes its data with reference to these hypotheses and pronounces them provisionally true or false, according to the message of the data when arrayed in accordance with these hypotheses. Finally, if the research worker is fortunate, a solution of the problem is attained, or in lieu of this an impasse is reached and recognized as such. So far the procedure is scientific, and ordinarily this is as far as descriptions of research go. Yet the description is certainly incomplete. It is quite evident that something more is needed. Science has done its part, and it is now the task of philosophy to do its part. This is no other than the interpretation of the scientific findings. This involves the determination of meanings and values. It raises the question, "What is this result worth?" In seeking to answer this question, philosophy, of course, views life as a whole and regards as of worth those things which serve the purposes of life. Moreover, philosophy attempts a higher synthesis than is available to science.

What we are pleased to call progress — and I think we are justified in calling it progress — has been more rapid within the past twenty years than ever before. This is due to the research movement in education and to no other cause whatever. Research and research alone has made the scientific analysis and the philosophical synthesis which is the thing we call progress.

The essential difference between thinking which is not research and thinking which is research is in refinement of method — a refinement the purpose of which is to assure the truth of the result. Most of these refinements have to do with the nature of the data. First, they must be *relevant*; second, the data must be *representative*; third, the data must be *abundant*; and fourth, the data must be *trustworthy*.

Probably the thinking ability of man has not improved within historical times. Certainly we have no right to suppose that we of today can think any better than our ancestors. Yet we do get more and better results. The improvement is not in the power to think but mainly in getting our data and safeguarding them from error. Our lamentable failure through the ages to make the best use of our power to think has been our failure to criticise the materials upon which the forms of thought

were exercised. Thinking can rise no higher than its source; and if the data upon which it rests are vitiated the entire fabric is unsubstantial.

But if the adequacy of the data is of paramount importance, it is also regarded as essential to a research technic that the data should be handled so as to bring out their true meaning. Here statistics plays a prominent part. The new methods of handling numerical data have gone a long way toward making possible the authoritative conclusions which a wealth of raw material can alone insure. In short, if it were not for the development of statistics, much of modern research would be impossible.

Sometimes, however, the very attractiveness of statistical technic leads to our undoing. Under the influence of statistical method our procedure tends to lose flexibility, and to harden into set forms. To let statistics aid our thinking is imperative so far as statistics applies, but to let it dominate all our thinking is to court disaster. Indeed there is in some quarters a lamentable tendency to substitute statistics for creative thought. I believe this is true in some of our curriculum research.

I wish to take a stand in the name of the integrity of the research movement for the use of interpretative thought ranging from common sense to philosophy to supplement the results of quantitative measurement. Never at any time shall we reach the point where the measurements will do all the work.

Let us demand of the measurers that their system shall be clearly better than the one it seeks to supplant. Let us also call them to account when they are overpretentious. But let us not demand of them a system which shall work with machine-like accuracy; for in so doing we shall not only ask the impossible, but also stand accused of seeking a desideratum of dubious value.

The position I have just taken has obvious practical meaning. It has close bearing upon the organization of research work which a superintendent may set up in his school system. Since research is not throughout its entire course dependent upon measurement and statistics, there is a place among research workers for those who have not perfected their training in these matters. The common sense of the experienced teacher is not to be despised in assigning research work on a cooperative plan.

It is my belief that every educational institution from the kindergarten to the graduate school should be organized both for research and for teaching. We readily recognize that the university professor should contribute to the sum of knowledge within his field. The same expectation, however, should be entertained in the case of the secondary school teacher, the elementary school teacher and the various supervisors and administrators.

Teachers themselves should welcome this principle. In the movement to democratize education let us reflect how unwise it is to jam our nostrums down the throats of teachers, and how advantageous it is to give them that vital part in determining policies and procedure which research permits. We may honestly believe that a certain method is the best, or at least better than a rival method now in operation. This we may call our hypothesis in a research project. What better way is there to enlist the interest of teachers than to have them try out the proposed method?

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MEASURING THE EFFECTS OF SURVEYS

FREDERICK P. KEPPEL

President, Carnegie Corporation

Surveys and survey technic are not limited to education. In a recent list compiled by the Russell Sage Foundation, only 311 of the 2700 recorded surveys are in this field. The survey in education and elsewhere is not a clear-cut phenomenon that can be considered all by itself. It merges with administration and supervision on the one hand, and with research and demonstration on the other. Sometimes it is so broad and rapid as to be more properly called a reconnaissance; sometimes so narrow and slow that we do not know just what to call it.

Essentially the survey is a part of the great movement which is basing human thought and human conduct on facts objectively measured, rather than on the assertion of authority. The survey is also a part of a second underlying movement of thought which leads away from the idea that one's own experience is always the best guide for future conduct. It may be the very worst guide when one's vision is distorted by being inside the focus. An essential part of the usefulness of the survey is the light it throws upon when and where and how to use the outsider.

The educational survey is not a new instrument. The modern survey movement, however, really began about 1910. Whether or not the

Pittsburgh survey of 1907, a social survey of historic importance, was the direct stimulus is a matter upon which opinions differ, but whether cause or coincidence, the juxtaposition is interesting. Doubtless the clearest analogy is to be found not in the social field but in industry. The results of the reorganization of large scale American industry which has taken place during the twentieth century constitute one of the outstanding economic facts of our time, and that reorganization has been based primarily on studies of existing conditions which were really surveys, though not called by that name. No defense of the industrial survey is needed.

We can throw some light on the question as to whether the survey gets things done. A study was made at the University of California of 31 more recent surveys, which reports that 61 per cent of the recommendations followed up had been actually carried out. Professor Koos of Minnesota made a study from a somewhat different angle and reports a somewhat higher percentage. Of 40 recent surveys of school buildings conducted by Teachers College, only one has failed of results.

Portland, not long ago, voted nine and a half million dollars for buildings, and Baltimore more than twenty-two millions, both as the direct result of surveys. The experience in the organization of the business end of education, including the purchase of supplies, insurance etc. and in the simplifying of the administrative procedure of school committees, is almost as striking. In the progress which can be directly traced to surveys in those fields, enough has already been saved to pay for the expenses of all city surveys. As to the studies which affect the community as a whole rather than a specific locality, the Carnegie Foundation report on medical education, written by Abraham Flexner in 1910, was the first effective step in an advance which has literally revolutionized the teaching of medicine. Here in New York State we are now distributing more than $70,000,000 a year on the basis of Doctor Mort's study of the measurement of educational need, and this study of Doctor Mort's was the direct outcome of the Educational Finance Inquiry.

An indirect result of these studies, which is not measurable, but, on the other hand, is not negligible, is the stimulation of both professional and lay interest, and the arousing of public opinion, which always accompany the progress of a good survey.

The survey is not an educational fad. It is a necessary factor in the scientific management of large enterprises. It is widely used in attacking the problems that challenge not only education but industry, health, religion and politics. Surveys have played an important part in the extension of the scientific movement in education. Significant changes in city and state educational organizations, in higher institutions, in professional education, and in the curriculum have already resulted from survey recommendations. This widespread survey activity has touched education from hundreds of angles. Surveys are exerting and will continue to exert a powerful influence on American education.

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CONTRIBUTIONS OF RESEARCH TO INDUSTRY

OWEN D. YOUNG

Chairman of the Board of Directors, General Electric Company

I should like to draw attention to two periods which have much in common, and which, to my mind, are the most productive of any in our history. They are three hundred years apart, the one from 1575 to 1650, and the other from 1875 to 1950; the latter, fortunately, with 22 years yet to go.

Since 1875 our population has almost doubled, urban growth has trebled, and the wealth and prosperity of the people have enormously increased. New industries have sprung up, science and invention have provided new things and afforded new ways of spending unexpected wealth. The quiet of a generation ago has been succeeded by great restlessness. Everywhere there is activity both in mind and body.

So it was in the time of Elizabeth. "Merrie England" had awakened from a long sleep and found itself in a new world. Shakspere's day came, and taking into account the other great movements of the period, it may seem not a little strange that now it is for him and others like him that the Tudor reigns are chiefly remembered. Today Elizabethan literature quite overshadows our interest in the commercial expansion, the religious controversies, the political intrigue of the period.

Just as the voyages of Vasco Da Gama and Columbus and Magellan, by disclosing a new world, played havoc with traditional beliefs, created a demand for an explanation and an interpretation and produced the great poets of

Underwood and Underwood Studios, N. Y.
Owen D. Young

the Elizabethan period, so the discoveries of Dalton and Prout and Crookes and Roentgen during the second half of the nineteenth century disclosed another and even more marvelous universe within the atom, for an explanation of which we look to the physical scientist of today.

From continued experiments on electrical discharges in rarified gases and especially from a close study of the so-called cathode rays, scientists were led to recognize the existence of the electrons, small negatively charged particles of which all matter was composed, each 2000 times as small as this same hydrogen atom.

There are about two billion inhabitants on the globe. If every man, woman and child had five hundred billion dollars and each dollar represented an atom, their total wealth would still fall short of the number of atoms found in a drop of water.

Is this imagination? To the physical scientist not at all. These things have been weighed and counted. Radium, X rays and radio bear witness to their reality. But what *is* this atom; what are these electrons, parts of itself that it shoots forth at the speed of light? Here we are definitely in the field of speculation and fancy, and hardly a year passes that does not see the entrance as well as the exit of a Thompson, a Rutherford, a Langmuir, a Bohr, or a Shroedinger form of atom.

In his attempt to unify physical nature, the physicist turns from the infinitely small to the incomprehensibly great.

Light travels at the rate of 186,000 miles a second, and the distance that it travels in a year is some five thousand billion miles. Using this light year as his yardstick, the astrophysicist finds the nearest star twenty thousand million miles away; finds that the largest would accommodate the entire orbit of the earth with millions of miles beyond Neptune to spare; finds the smallest about the size of the earth, with matter weighing about a ton per cubic inch.

Only a few of the paths to truth have yet been traversed and who can predict what the future may have in store. For observe that with all of our investigations and inquiries we are not creating anything. We are only finding out what already exists — facts of which mankind must take account if it is to survive.

Does Nature wait until she is found out before she exacts her penalties or bestows her blessings? Not at all. In the reign of the Tudors about a quarter to a sixth of the population of London was wiped out every generation and in a single season by epidemics and disease, and in Shakspere's day that death rate determined whether the theaters should be open or closed. Today, thanks to research, such plagues are almost unknown. For millions of years the sun has delivered her life-giving rays at the rate of 4,690,000 horse power to a square mile, worth at current rates upward of two billion dollars a year. Now physical research has disclosed yet other rays coming from space with a wave length one hundred millionth that of light and five thousandths that of X rays, the shortest heretofore known. What effect these may be producing upon us as we gather here, or on that material substance in the walls of this edifice itself is at present unknown. They may be keeping us alive, they may be destroying us, or what they do may be entirely within our control. Future physical research will find out. A microscopic speck of yeast under proper conditions will produce 75 tons of edible food in ten days. What blessings may not the electron and the cosmic rays some day confer upon a perishing race when their incredible hidden energy is tapped and brought under control.

Human progress may be compared to an ascending spiral, and the course of civilization may be divided into successive periods of activity and rest, each of which is destined to make its special contribution to the total sum. Now it is to art, now to religion, now to the science of government, now to literature, now to philosophy, now to physical science, now to industry that we point in evaluating these epochs; for these are the things of the spirit and the intellect that do not perish though heaven and earth pass away.

And so, I salute the workers in physical research as the poets of today. It may be that they do not write in verse, but their communications are of such lively interest that they are on the front pages of our newspapers and command space in our cultural periodicals. They appeal to the imagination of us all. They contribute the warming glow of inspiration to industry, and when industry pulls their ideas down from the heavens to the earth and harnesses them for practical service, it too feels that it is an important actor, not only in the making of things, but on the larger stage of the human spirit. There may be enough poetry in the whir of our machines so that our machine age will become immortal.

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THE USE OF ACTIVITY ANALYSIS IN CURRICULUM CONSTRUCTION

W. W. CHARTERS

Director, Bureau of Educational Research, Ohio State University

To locate the function of activity analysis in education it is necessary to describe the curriculum situation in which it is used.

The major problem of a curriculum maker lies in the selection of materials. Two bases for selection have been used. Educators located on the right wing, who are in the majority in colleges of arts and science and still through traditional forces profoundly influence the high school and to a lesser but still important degree the elementary school, claim that the best texts for the learner are overview texts. They believe that the most efficient textbooks and courses are those which present the fundamental principles and facts of the arts and sciences. They support the position that the best materials for students are the research products of the geniuses of the race organized in concise and scholarly fashion.

Another group of educators, the left wing, support the position that texts for learners should originate in the problems, activities and interests of modern life. They say that children and adults of 1928 have important problems to solve and essential activities to carry on. The function of the textbook is to help these people to solve these problems. For the solutions, the left wing will, of course, use the best products of the scholarly activities of the race; but they may not use all the fundamentals of all subjects and they are not concerned to any painful extent with systematic organization of the great fields of knowledge.

There is inevitably a third group — the center — who believe in the principle of practical use with the left wing and at the same time appreciate with the right wing the necessity for systematic organization of the fields of knowledge at times which are pedagogically and psychologically appropriate. To this group the speaker belongs.

Into this situation activity analysis enters as a technic for determining the activities, problems and difficulties of the adults and children who are to be taught.

Such an analysis may be either informal or scientific. The informal type of analysis is carried on by the textbook maker himself. He may have had long experience with the students for whom he writes and upon this basis he selects what he believes to be useful material. Because his judgment is not usually so valid as it should be activity analysis of a more systematic and definite sort is introduced for the purpose of securing a clearer idea of the topics to be treated than informal analysis provides.

The only function of job analysis is to substitute for hunches a refined and definite picture of just what the activities are which will be treated in texts and courses of study. Such analyses are of no use to the extreme right wing, which does not believe in applications of the principles to the problems of practice and the activities of laymen. The claim can not be successfully substantiated for activity analysis that it can formulate the ends, aims and objectives of education. It is, however, claimed for it that it can determine the activities, interests, problems and needs of people and can by consensus, by individual opinion or by measurement determine which of these are most important and which ought not to be performed.

Orchestra of State Normal School at Potsdam

This orchestra and the chorus of the same school won merited commendation for selections musicianly rendered at the sixty-fourth Convocation.

Activity analysis is merely a constellation of technics among many technics. It supercedes hunches, informal opinions and individual judgments by careful, painstaking and costly investigation. Selection of material for the curriculum is inevitable. It has always been necessary. Activity analysis makes selection more objective because it provides a clear picture of the substantial bases of selection. The permanence of the technic is beyond debate. They are here to stay. The usefulness of activity analysis is dependent upon the industry and intelligence of its friends and is closely correlated with the providing of increasingly simple and efficient technic. It is, in short, a form of educational engineering which lays out the structures and the substructures of all kinds of curriculums.

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CURRICULUM RESEARCH

EDWARD L. THORNDIKE

Institute of Educational Research, Teachers College, Columbia University

Scientific research does not oppose or seek to supplant the observation and reflection of teachers, or the combined wisdom of committees, or the investigations of bureaus, or the insights and theories of genius. It merely seeks to extend and improve the observations, to discover more facts and better methods for committees and bureaus to use, and to check and test the theories.

The scope of scientific study of the curriculum is very wide, including, substantially, everything about what is to be learned, everything about what use the learners are to make of it, and everything about how they learn it.

Research concerning What Is To Be Learned

As a new branch of science appears and grows, we need to know about it and what it may do for the curriculum.

Since we are concerned with any existing or proposed content of the curriculum as something to be learned, we need to know how hard it is to learn, and what, if anything, must have been already learned as a basis.

The interest or attractiveness or appeal of any given experience or act of learning to specified groups of learners is a second fact which curriculum makers need to know about each of the elements of content from which they have to choose.

A primary factor in evaluating any curriculum or any features thereof is the changes which are actually produced in pupils by it. Educational bookkeeping used to be very one-sided. We kept an account of the money spent on plant and personnel and the time spent by pupils in school, but almost no account of what came of it all. Standard educational tests are causing a most beneficial change in this respect.

Researches concerning the Uses of Various Elements of the Curriculum

What words will our pupils need to read and to spell? What arithmetical operations will they use? What geographical and historical items will they need to know? Our ignorance

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The University of the State of New York
Bulletin to the Schools

Issued semimonthly during the school year by the State Education Department

CHARLES F. PROBES, *Editor*

This bulletin is sent without charge to all schools and educational institutions of the State. To others it will be mailed postpaid for 50 cents a year, 5 cents for single copies.

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NOVEMBER 1, 1928

Owen D. Young Receives Honorary Degree

The honorary degree of doctor of laws was conferred upon Owen D. Young, chairman of the board of directors of the General Electric Company, at the opening of the sixty-fourth Convocation of The University of the State of New York on Thursday evening, October 18th, in Chancellors Hall.

The presentation of Mr Young was made by Regent Walter Guest Kellogg. The degree was conferred in behalf of the Regents by Dr Frank P. Graves, President of the University and State Commissioner of Education. In presenting Mr Young for the degree Regent Kellogg said:

MR PRESIDENT: I present to you for the degree of doctor of laws, Owen D. Young — farmer, lawyer, student of books and men, captain of industry, statesman, a national figure, an international figure.

A doer of things, big things, yet a doer in embryo — for he has only begun. Bigger things await. I speak of him not for what he has done, but for what he is. The Vanhornesville farm which bore him still claims him for its own. The tang of the soil sticks to him. His bigness grew slowly in a rich soil, far from cities. A patient country man, slow moving, among the great of earth; a country man because he knows and understands his countrymen. He approaches a seething volcano calmly as if it were his after-dinner pipe. He never overspeaks, never overemphasizes. Nothing excites him. He thinks; and all that he says bears the rare impress of deliberate thought. Among the public men of today he stands conspicuous for basic common sense. He is never afraid; he thinks the thing out and it is all so plain, so clear, so simple. Another country man, an inch or so taller, had the same way of speaking, years ago. I present Owen Young for what he is — a man of integrity, of character whose common sense is fired with a splendid vision of things as they are — and as they are to be.

The remarks of President Graves in conferring the degree follow:

OWEN D. YOUNG: We are indeed proud of your record of integrity and success in business and of your outstanding achievements on national and international commissions in days of world stress, but most of all are we gratified that in the midst of your busy and distinguished career you are devotedly serving the interests of education and research through membership in the directing bodies of many educational and scientific organizations. A true son of democracy, you have not forgotten the simple environment of your youth but are enriching the educational opportunities of the children in the rural community in which you were born; a loyal alumnus of your alma mater, you are serving her faithfully as president of her board of trustees.

King Solomon wisely said, "Seest thou a man diligent in his business? He shall stand before kings." You have been diligent not alone in your own affairs but in behalf of your brother man, and truly you have stood with uprightness and distinction not only before kings but before sovereign peoples. Leader in business, friend of education, unselfish servant of mankind, The University of the State of New York welcomes this opportunity to testify to her pride in you as a distinguished son of the State and to our appreciation of your eminent service in the industrial, social and educational life of the Nation and of the world. The Board of Regents of the University have therefore delegated to me as President the pleasant duty of conferring upon you the honorary degree of doctor of laws, in token of which I hand you this diploma and place upon your shoulders this hood of royal purple and gold.

Calendar of Educational Meetings

New York State Teachers Association, southern section, Ithaca, November 9th and 10th

Associated Academic Principals, Syracuse, December 27th–29th

Department of Superintendence of the N. E. A., Cleveland, Ohio, February 24–28, 1929

Teachers conferences: second district of Saratoga county, Ballston Lake, November 16th

Dr George M. Wiley, Assistant Commissioner for Secondary Education, was the principal speaker at the dedication of the new high school at Forestville on October 26th.

Convocation Addresses

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concerning the facts in the case was, and in most cases still is, pitiable. Take the simple case of word knowledge. Max Muller once said, or was reputed to have said, that the English peasant got along with a vocabulary of about 300 words. Until a very few years ago, we all taught reading with no clear idea of whether we were, in grades 1 to 8, to teach 4000 words or 8000 or 12,000 or 16,000 or 20,000. Nobody knew how many words eighth grade pupils did know, or should know, much less which words they should be.

We still know far too little, but we at least know that the Max Muller estimate needs to be multiplied by 10 or more. We also know the approximate order of importance for use in reading of the most important 10,000 words. We are in a position to prevent in the future such educational absurdities as having a total vocabulary of 9500 words in the ten most widely used textbooks in reading for grade 3, with less than 700 words occurring in all the ten.

These and other investigations of the uses of learning in the world have some defects and many limitations. We who have made them, understand this perhaps even more fully than our critics. They are imperfect measures of what the world does use; moreover, the step from what it does use to what it should use is often a long one, and at times in a different direction. But when they are applied with a reasonable allowance for other considerations the results upon the curriculum are demonstrably beneficial.

Researches concerning Learners

In its actual day by day details at least, the content of the curriculum is dependent upon our ideas of children's minds. Learning and the learner can not usefully be divorced. The particular steps by which we attain a certain ultimate aim of the curriculum will vary enormously according to our psychology.

Indeed, the changes wrought in the actual details of the curriculum during the past generation have been in very large measure due to the psychological researches on mental discipline and on individual differences. It is significant that our scientific studies of the actual uses of items of the curriculum were not begun until the psychologist had shown the impossibility of any general, formal mental training irrespective of the particular habits and ideas and attitudes acquired, and the restricted nature of transferred abilities.

Researches concerning individual differences have also exposed the fallacies of judging curriculums by their products without allowances for the selection of human material upon which the curriculum worked.

On the whole, we may properly be very optimistic concerning the use of the scientific spirit and scientific methods in the study of the curriculum. In the few years of their operation they have already done useful service. They have so proved their worth to responsible authorities that expenses for such studies are a recognized part of the educational budgets of progressive states and cities and a recognized feature in the grants of our great philanthropic foundations. More money has been allotted specifically for scientific studies of education in the past ten years than in the previous ten thousand. Their results are made use of widely in the training of teachers and the construction of textbooks and other instruments of instruction. They are earning the respect of workers in the older and more established branches of science and letters. The learned world has called on scientific students of education for help more in the past five years than in the previous five hundred. They are attracting the interest of young men and women of intellect and idealism who will gladly make educational research their life's work if they can be shown a reasonable prospect of a living wage thereat.

Less and less every year the curriculum will be based on the traditions of the multitude or the personal prestige of some reformer. More and more it will be the product of our laboratories and experimental schools, certified by experts.

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CONTRIBUTIONS OF RESEARCH TO BUSINESS

EDWARD A. FILENE

President, William Filene's Sons, Boston

This "miracle" of American prosperity — the big volume of luxuries, comforts and necessities that we produce and consume — has been due largely to research: to an application of the same scientific methods in the conduct of business as have been so successful in medicine, biology, physics and astronomy.

Chorus of the State Normal School at Potsdam

The chorus shared honors with the orchestra of the Potsdam School for the programs given at Convocation sessions.

The most successful business men are those who plan and organize their operations intelligently, like scientists, with consideration of all factors affecting them. They base their decisions upon facts, not opinions. There is little place today for those who work by haphazard systems, by guesswork, by rule-of-thumb methods or worn-out traditions.

American business is spending, according to some estimates, more than $200,000,000 a year on research — $70,000,000 through the Government and $130,000,000 through commercial firms.

Research work in the industrial field and the economies it has given us are a challenge to merchants to apply the same scientific methods and to eliminate the waste that is still a disgrace to our present system of distribution.

I can honestly say we are trying to do it. We have 90 trade associates carrying on research for more than 130,000 retail organizations. The Retail Research Association is an association of 18 large department stores, whose gross sales last year were more than $300,000,000. The stores in this group have standardized accounting systems, and so can study comparative costs intelligently. All the facts about the operation of each store are made available to every other member.

Industrial and retail research are aided by activities in other lines: by banks and trust companies, by insurance companies, public utilities corporations, advertising agencies and the hundreds of chambers of commerce. All these compile a mass of information that is invaluable to business.

But business research is not confined to immediate ends. It has gone behind these to examine the fundamental principles of economics. Labor organizations have agencies for collecting data which increase the general understanding of wage earners in regard to our industrial system. Business men are organized in the very successful Chamber of Commerce of the United States which collects facts bearing upon commercial conditions and the general welfare, so that business leaders may be better prepared to solve the large problems that confront them and the country.

Mass production and mass distribution, the fruits of research, will give us great material prosperity, but the by-products of this new scientific era are the most important.

For one thing business depressions and crises will be made more and more unlikely. By straight thinking — scientific thinking based on scientific research — they can be largely prevented.

Another beneficiary of the new era will be education itself. Modern business must give preference to the college and university-bred man trained in scientific methods. Because of its need for them, successful business will be obliged to help and support education to a degree undreamt of until now. While we are contributing a great deal of money to education, it is wholly inadequate. No man can run a ten-acre factory with a five-horse power engine; nor can we run this 60,000,000-horse power industrial system of ours without intelligent man power in the low as well as in the high positions.

We need cultural education as much as we need vocational education. Big plants, employing thousands of men and women, can not afford to risk their capital and profits with

workers so uneducated and so lacking in a broad understanding of life that they will follow irresponsible, radical or revolutionary leaders because they do not know the history of civilization and its lesson — that the best progress, and the only permanent progress, is evolutionary and not revolutionary.

You may credit scientific research and the profits it has brought to business with this changed attitude of the industrial leaders toward education. Industry and business are learning that the Nation can become permanently more prosperous in a material sense only if the masses are equipped by education to apply more knowledge and intelligence to the broad problems of life.

In this golden age of industry educators will be better paid. The same motives that have led us to increase the wages of other classes will bring this about.

I do not doubt that the salaries of our teachers, particularly in the colleges and universities, will be doubled within a surprisingly short time. There must be opportunity, and money, for teachers to travel, not only for the purpose of sight-seeing, but to have a surer understanding of the relationship their own specialty bears to other fields of learning.

Just as the application of science to business is already giving education a business standing, so has it already given business an academic standing. Business and education are closer today than they ever were, and the association is good for both of them. Education, by aiding business, hastens social progress that comes as a by-product of an efficient business system.

Another by-product of the scientific age in business will be the greater concern in social and political problems. Business men, finding they succeed only by scientific methods of business, will inevitably apply this fact thinking to political and social problems, to which many of them at present apply, as a rule, only traditional convention, opinionated thought and practice.

The consumer, in this golden age, will get real service — and by that I mean the greatest possible value for his money.

I do not agree with those who say that the machine age of mass production will drive beauty from our life, and throw a blanket of ugliness over everything. The very first principle of mass production is the selection of an article of production that the largest number of people will need and like, because its design, its durability and its quality please them and serve their interests.

In the final analysis beauty is the greatest objective in the world. But we can not teach spiritual truths effectively to a starving people. One great way to make more beauty in this world is to make the obtaining of a living — the obtaining of the necessary food, clothing and shelter and the necessary minimum of luxuries — so mechanical and so little time-consuming that we shall have time for avocations — have time to work and search for better things — to search for beauty. This can be accomplished by saving of waste, by more economic justice, by invention and better organization of production and distribution, by better training of workers and leaders.

I hope that I have succeeded in indicating to you the need that business has of scientifically educated men and educators and the service you may be in promoting prosperity — and, as a consequence of prosperity, the social progress of the country. By the same means you can do more than statesmen and politicians to eliminate war which is the greatest waste and the highest barrier in the path of world progress.

We are entering on the golden age of science. I congratulate you that you are equipped for leadership in the new age. I congratulate you that you have the opportunity to produce men who will not only greatly aid material progress, but who will, in aiding business, also greatly advance our social and spiritual progress.

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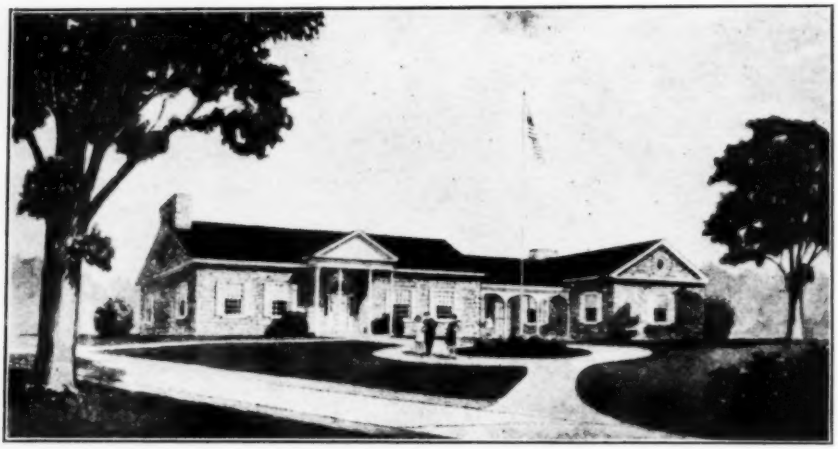
Jefferson High School Is Improved and Enlarged

The Jefferson High School has been improved and remodeled by the installation of a new heating and ventilating system and by the addition of two classrooms, a principal's office, a laboratory and lavatories. In the interest of better instruction and more adequate supervision, the seventh and eighth grades have been consolidated with the high school in a junior-senior high school organization.

The school has organized a course in vocational guidance. This was given during the past school year under the direction of the principal, Kenneth H. MacFarlan.



Sketch of New School at Vanhornesville

Owen D. Young Gives Modern School to His Home Town

A modern school for the village of Vanhornesville has been erected for the children of his home community by Owen D. Young, chairman of the board of directors of the General Electric Company, upon whom The University of the State of New York conferred the honorary degree of doctor of laws at the Convocation this year.

The burning of the village school in 1926 seemed a disaster to the townspeople until their plight became known to this international figure, who once was a plow boy on the hills overlooking the village and who still returns at every opportunity to seek rest and recreation in the home of his mother and with his friends who know him best as Owen.

To the long list of improvements in the village which Mr Young has found pleasure in making possible, he has now added a school unsurpassed in beauty and efficiency, and affording to the children of his community more complete educational opportunities than are usually afforded in rural sections.

The building is of colonial design with wide approach. In addition to the classrooms, which can be thrown together for community purposes, the new school provides rooms for special studies, a teacher's room and a library. It has been so constructed that it may be enlarged as the growth of the village and the possible expansion of the district make it necessary.

Into the school, as Mr Young pointed out in his talk at the laying of the corner stone last July, has gone the devotion of skilled artisans, all except the architect being drawn from the vicinity of his home town. Likewise, the material for the building so far as possible was secured in that vicinity. The stones that went into its walls were brought from surrounding fields, each carefully selected for size and color, then cut by skilled hands and fitted into its appropriate spot.

The rooms to the rear of the building overlook a large playground across Otsquago creek, crossed by rustic bridges. The front overlooks the main highway between Cooperstown and Fort Plain.

In the interior are beautiful floors and woodwork, and the plumbing, heating and lighting systems are of the best. Reproductions of early American furniture, made by veteran woodworkers, have been provided.

Modestly disclaiming credit for the building, Doctor Young in his address at the laying of the corner stone declared that it stands as a monument to two groups of people. The first group consists of the skilled artisans who erected the structure, the men who planned it, including the architect, Ernest Sibley of Palisades, N. J., the district superintendent of schools, S. C. Kimm, and Frank H. Wood, Director of the School Buildings and Grounds Division of the Department. The other group

are the teachers who taught the donor when a boy. To them, as representatives of teachers everywhere, he dedicates the beautiful structure.

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Music "Clinics" Planned for Northern New York

Through the cooperation of the principals and the teachers of music, a series of "clinics" for the demonstration of the teaching of music in grades 1 to 8 will be held by Russell Carter, supervisor of music, at three places in northern New York this month. The morning session, beginning at 9.30 o'clock, will be devoted to the visitation and the teaching of classes of children. After lunch there will be opportunities for informal discussion of the work of the morning and for the observation of any local work which may be scheduled.

These meetings are planned to give practical aid in teaching problems to teachers. The places and dates follow: Tuesday, November 13th, at the State Normal School at Potsdam; Thursday, November 15th, at the State Normal School at Plattsburg; Friday, November 16th, at the Port Henry High School.

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Funds Asked for Schools of Devastated Porto Rico

Contributions to rehabilitate schools of Porto Rico, which was devastated by a cyclone on September 13th, may be sent to treasurer of Porto Rico, San Juan, P. R. With nearly 50 per cent of the population homeless and the agricultural products of the island almost totally destroyed, the government of this small American territory is using its resources to overcome such evils as hunger, sickness, lack of shelter etc. In this relief work generous aid is being given by the American people. It is feared, however, that the government will be unable to grant sufficient funds to maintain the school system, especially since a large proportion of the buildings were destroyed. It is for this reason that the president of the Porto Rico Teachers Association appeals for funds for the schools of the island.

In giving publicity to this request for aid, the Bulletin reminds school officials that a rule of the Board of Regents forbids collections in the schools.

Radio Corporation Announces Programs of Educational Value

The Radio Corporation of America has announced a series of symphony concerts arranged and directed by Walter Damrosch and broadcast each Friday morning at 11 and 11.30 o'clock, eastern standard time, through 26 radio stations. The New York State stations are WJZ, New York, and WHAM, Rochester. Manuals of questions and answers on the programs may be obtained by classroom teachers whose pupils are listening in regularly. Such requests should be addressed to the Division of Education, Radio Corporation of America, 233 Broadway, New York City.

Dr William J. O'Shea, superintendent of schools in New York City, has made the following announcement regarding the programs:

In as much as these concerts will supplement admirably the work in music appreciation prescribed in the course of study, schools having radio sets suitable for auditorium use are invited to take advantage of the opportunity here presented.

To provide for a maximum of educational value from the proposed concerts, as opposed to mere entertainment, the special teachers of music have been asked to cooperate with the schools by supplying advance copies of programs and by suggesting appropriate follow-up exercises, to the end that pupils may be prepared to understand and to react appropriately upon the selections presented.

I trust that our schools will cooperate fully in this movement, which inaugurates what may prove to be an extensive educational program of radio broadcasting.

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"Roll Call" Is Indorsed for Armistice Day Programs

The sounding of the "Roll Call," an eight-measure musical phrase, has been indorsed by many organizations, including the Army and Navy and many school systems, as an appropriate part of the exercises on Armistice Day and similar occasions. Copies of it may be obtained without charge from its composer, S. Walter Krebs of 547 Riverside drive, New York City.

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An address on visual instruction was given by A. W. Abrams, Director of the Visual Instruction Division of the Department, before public school teachers of Port Jervis on October 22d.

Doctor Finley Speaks at Unveiling of Henry Monument

Honor to Joseph Henry was paid in Albany, the city of his birth, on October 18th, when a monument was unveiled in the park in front of the Albany Academy, where he made his important discoveries in electromagnetism.

Dr John H. Finley, former President of The University of the State of New York and State Commissioner of Education, who years ago aided the project of having a monument erected to Henry's memory, was the principal speaker.

Doctor Finley said in part:

I can not speak of Joseph Henry without first saying a word about two men, except for whose initial interest and effort, the statue would not be awaiting its unveiling. One of these is former Governor Martin H. Glynn and the other the former head of the State Museum, Dr John M. Clarke.

I remember the first meeting which a few of us held, Professor Pupin being our special guest. And I recall, too, one of Professor Pupin's figures of speech that night. There are, he said, three greatest men in American history, George Washington, Abraham Lincoln and Joseph Henry. "They are three pyramids," he said and added "the others are as Bedouin huts." We should all add several to the number of the pyramids, but one of them would still be Joseph Henry, the American inheritor of the mantle of Benjamin Franklin and the American procurer of the telegraph, the telephone, the dynamo and the motor.

Except for what seemed a chance reading of a book in a time of illness, it is probable that this lad, who was thought too dull to learn any mechanical trade, a sensitive and dreamy youth, who was in turn errand boy, apprentice to a silversmith, amateur actor, surveyor and school teacher, would never have become the foremost American physicist and the pioneer American genius in the discovery of the principles of electromagnetism, which has now revolutionized industry, given greater mobility to society and made a republic as wide as a continent possible.

Having read this elementary scientific book, he made the resolve to commence to devote his life to the acquisition of knowledge. This suggests the wisdom of letting youth have range, or at any rate have a look into, the varied fields of human effort before choosing his life work, receiving vocational guidance of his aptitude.

In conclusion Doctor Finley said:

He took a deep interest in acoustics, in meterology, in signalling through fogs, in testing illuminants for use in lighthouses. This indeed was his last service in a field whose every department his genius adorned and from which he looked out into every other field of human interest. It was said of him that he was of all living men the most fit to administer the fund which was the gift of James Smithson, who just 100 years ago this year made a bequest for the establishment of what is now the Smithsonian institution — a fund whose object is the increase and diffusion of knowledge among men. Lincoln said that this institution must be a grand school if it produces such thinkers as Joseph Henry. But it may be said that he produced the Smithsonian Institution, for he interpreted the will of Smithson and gave it its fame, scope and function, but he himself was produced by Albany and the Albany Academy.

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Schools Manifest Interest in Phi Beta Kappa Program

Requests for Phi Beta Kappa speakers to talk on "The Value of Scholarship," as announced in the October 1st issue of the Bulletin, have been received from a number of schools, according to the committee of the Upper Hudson Association of Phi Beta Kappa, which is sponsoring the project. In view of the interest manifested, the committee is now compiling a list of speakers.

Although it was announced that the program can be extended only to those schools that can be reached conveniently from Albany, requests for speakers are being received from schools not in the Upper Hudson district. Since the state association can not assume the responsibility of this work this year, it is suggested that schools not in the Albany area communicate with the secretaries of other district associations. The names of the secretaries follow: Phi Beta Kappa Alumni in New York, John O. C. Clark, 31 Nassau street, New York City; Phi Beta Kappa Alumni in Buffalo, Rev. Charles D. Broughton, 24 Linwood avenue, Buffalo; Central New York Association of Phi Beta Kappa, Professor Dorothy Doudore, Elmira College; Phi Beta Kappa Alumnae in New York, Sophie Bulow, 2444 Lorillard place, New York City.

The committee is proceeding in organizing schools to be visited on the circle plan, that is, it is grouping high schools and higher institutions so located as to be accessible in all weather by (1) train or trolley from the speaker's starting point, and (2) automobile or trolley to the schools and station for the return trip.

Local History of New York State

Washington in New York

Links of the Chain Which Was Stretched across the Hudson at West Point

Vessels sailing up the Hudson were obliged to slacken speed at West Point because of the turns in the river and then found their passage obstructed by this chain. Thus they were exposed to the cannon placed in the fort west of the point. The fortifying of the Hudson was under Washington's general supervision. Fortifications there were the key to the control of the Hudson.

Events of the period between July 15, 1778, when Washington arrived at Haverstraw, N. Y., and December 1st, when the army was on the march to New Jersey, called for the exercise of his wisdom and address. While the distresses of war hung heavily on the country, Great Britain had made an extraordinary effort to restore her dismembered empire. Lord North, prime minister, had forced through parliament two conciliatory measures, one repealing the obnoxious tea duty, the other appointing commissioners with power to halt the movements of the king's troops, suspend all offensive laws and seek a reconciliation. Congress, strongly supported by the commander in chief, rejected the offers of the commissioners, and was sustained by a war-burdened yet determined people. But the entrance of France on the scene of action was to create a situation of more difficulty.

From Haverstraw Washington sent messages to Count d'Estaing and to General John Sullivan, looking to a joint movement of fleet and troops against Newport, R. I., then in the enemy's possession. The French admiral, unable to reach the ships of Lord Howe behind the barrier of sand on the New Jersey coast, entered readily into the new proposal. Violent storms, however, prevented his squadron from attacking Newport or from engaging the British fleet, which, although inferior in strength, came from Sandy Hook to Rhode Island to aid in the defense of the city. Toward the end of August Count d'Estaing sailed away to Boston, his storm-battered vessels much in need of repair. Disappointment and vexation led the Americans, under Sullivan, encamped in Rhode Island, waiting vainly the landing of French troops for a joint attack on the enemy's works, to criticise their allies in terms so intemperate

that all of Washington's tact and art of gracious compliment were required to allay the irritation and resentment of the French officers.

At White Plains in September we find the American commander concerned with new duties. He must preserve the Hudson river defenses and communications, must provide land forces for the protection of the French squadron in Boston harbor, since the arrival of a second English fleet on these shores had reversed the naval preponderance, and must consider a proposal for a new invasion of Canada. For the first object he visited West Point, and inspected the forts and batteries which Kosciuszko was constructing. For the second he advanced three brigades toward Boston to cooperate with the French, if needed. For the third he sought precise information concerning the enemy's troops in Canada, the sentiment of the inhabitants and the supplies of provisions in that country. A letter written by Washington to the President of Congress from Fredericksburgh in the middle of November reveals his thought on the alluring project of driving the British out of Canada with the aid of French soldiers. If the French should decide to remain there, and Canada thus return to its old status as a colony of France, how would this affect the welfare of the United States, he asked. In his letter appears this sentence: "It is a maxim, founded on the universal experience of mankind, that no nation is to be trusted farther than it is bound by its interest."

Washington's stay at Fishkill was marked by an incident which he doubtlessly regarded with quiet amusement. The young Marquis de Lafayette, angered at some reflection on his beloved France in a communication of the British peace commissioners to Congress, sent an invitation to the head of the commission to meet him on the field of honor. While withholding approval of the challenge, which it was reasonable to suppose that the commissioner would not accept, Washington said to the gallant youth: "The generous spirit of chivalry, exploded by the rest of the world, finds a refuge, my dear friend, in the sensibility of your nation only . . . Supposing his Lordship accepted your terms, experience has proved that chance is often as much concerned in deciding these matters as bravery; and always more than the justice of the cause." Washington assured Lafayette that he would not have his young friend's life exposed when it might be reserved for greater occasions.

Notes from the Field

The laying of the corner stone of the New Eastport High School took place on October 5th.

The corner stone of the new junior-senior high school in Granville was laid with appropriate exercises on October 15th.

The corner stone of the $250,000 addition to the Islip High School was laid on October 21st. The addition will contain 12 classrooms and a gymnasium. The combination gymnasium and auditorium in the present building is being remodeled into an auditorium.

Frank H. Wood, Director of the School Buildings and Grounds Division of the State Education Department, was the principal speaker at the dedication of the Frankfort High School on October 17th.

Rena Rockwell, head of the history department of the Elmira Free Academy, was reelected president of the New York State Teachers Welfare League at its annual meeting on October 20th in Syracuse. Frieda Hayes, Kingston, was elected secretary, and Florence E. Hall, Watertown, was elected treasurer.

The dedication and inspection of the Benjamin Franklin School in Binghamton took place on October 19th. This new elementary school was erected at a cost of $500,000 and has a seating capacity of 1200, with provisions for 500 additional seats if necessary. There are 42 classrooms, an auditorium, a gymnasium, an open air department, a library, teachers' rooms, principal's office, dispensary, kitchen and cafeteria facilities.

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UNIVERSITY OF THE STATE OF NEW YORK PRES